WHAT IS CLAIMED IS:

1.   A process for solubilizing an organometallic compound in a fluorinated solvent to form an organometallic solution, comprising adding and reacting a co-solubilizer comprising a partly fluorinated polymer, an organometallic compound, and a fluorinated solvent, wherein said partly fluorinated co-solubilizer has the ability to cause said organometallic compound to become miscible in a fluorinated solvent, and wherein said partly fluorinated co-solubilizer does not react as a catalyst and is present in the organometallic solution.

2.   A process for solubilizing an organometallic compound in a fluorinated solvent to form an organometallic solution in accordance with claim 1, wherein the partly fluorinated co-solubilizer has the following formula I:

$$R_1\text{-}(CF_2)_n\text{-}R_2$$

wherein n represents a number of from about 0 to about 25; R_1 and R_2 are the same or different and each is selected from the group consisting of hydrogen, hydroxyl, hydroxyalkyl, aminoalkyl, aminoaryl, aryloxy, alkyl, aryl, carboxylic acid, carboxylic acid containing groups having from about 1 to about 25 carbons, carbonyl, alkyl ketone carbonyl, and $CF_3(CF_2)_o(CH_2)_p$, wherein o is a number of from about 0 to about 25, and p is a number of from about 1 to about 25, with the proviso that R_1 and R_2 are not both fully fluorinated.

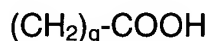3.   A process in accordance with claim 2, wherein n is from about 1 to about 10.

4.   A process in accordance with claim 2, wherein in formula I, R_2 is a hydroxyalkyl having from about 1 to about 25 carbons.

5. A process in accordance with claim 4, wherein said partly fluorinated co-solubilizer is selected from the group consisting of $H(CF_2)_6CH_2OH$, $H(CF_2)_{10}CH_2OH$, $HOCH_2(CF_2)_3CH_2OH$, $CHF_2(CF_2)CH_2OH$, $CF_3CHFCF_2CH_2OH$, $CF_3(CF_2)_2CHOHCH_3$, and mixtures thereof.

6. A process in accordance with claim 2, wherein in formula I, R_2 is selected from the group consisting of an alkyl carbonyl having from about 1 to about 25 carbons, and an alkyl ketone carbonyl having from about 1 to about 25 carbons.

7. A process in accordance with claim 2, wherein in formula I, R_2 is a carboxylic acid.

8. A process in accordance with claim 7, wherein in formula I, R_2 has the following formula II:

$$(CH_2)_q\text{-}COOH$$

wherein q is a number of from about 1 to about 25.

9. A process in accordance with claim 8, wherein said co-solubilizer is $CF_3(CF_2)_2(CH_2)_2COOH$.

10. A process in accordance with claim 2, wherein said co-solubilizer is selected from the group consisting of 4-aminononafluorobiphenyl, 4-amino-2,3,5,6-tetrafluorobenzoic acid or 1H,1H,11H-eicosafluoroundecyl acrylate and mixtures thereof.

11. A process in accordance with claim 1, wherein said partly fluorinated co-solubilizer is added in an amount of from about 0.1 to about 40 percent by weight of total solids.

12. A process in accordance with claim 1, wherein said organometallic compound is selected from the group consisting of monodentate, bidentate, and multidentate ligands.

13. A process in accordance with claim 1, wherein said organometallic compound is selected from the group consisting of a superconductor and a superconductor precursor.

14. A process in accordance with claim 13, wherein said organometallic compound is selected from the group consisting of copper (II) hexafluoropentanedionate, copper (II) methacryloxyethylacetonacetonate, antimony ethoxide, indium hexafluoropentanedionate, and mixtures thereof.

15. A process in accordance with claim 14, wherein said organometallic compound is copper II hexafluoropentanedionate.

16. A process in accordance with claim 1, wherein said fluorinated solvent is a partially fluorinated organic molecule.

17. A process in accordance with claim 1, wherein said fluorinated solvent has from about 2 to about 25 carbons.

18. A process in accordance with claim 1, wherein said fluorinated solvent contains carboxylic acid functionality.
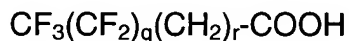
19. A process for solubilizing an organometallic compound in a fluorinated solvent to form an organometallic solution, comprising adding and reacting a partly fluorinated co-solubilizer, an organometallic compound selected from the group consisting of a superconductor and superconductor precursor, and a fluorinated solvent, wherein the co-solubilizer has the ability to cause the organometallic compound to become miscible in the fluorinated solvent, and wherein the partly fluorinated co-solubilizer is not a catalyst and is present in the organometallic

solution, and further wherein the partly fluorinated co-solubilizer has the following formula I:

$$R_1\text{-}(CF_2)_n\text{-}R_2$$

wherein n is a number of from about 0 to about 25; R_1 and R_2 are the same or different and each is selected from the group consisting of hydrogen, hydroxyl, hydroxyalkyl, aminoalkyl, aminoaryl, aryloxy, alkyl, aryl, carboxylic acid, carboxylic acid containing groups having from about 1 to about 25 carbons, carbonyl, alkyl ketone carbonyl, and $CF_3(CF_2)_o(CH_2)_p$, wherein o is a number of from about 0 to about 25, and p is a number of from about 1 to about 25; with the proviso that R_1 and R_2 are not both fully fluorinated.

20. A process for solubilizing an organometallic compound in a fluorinated solvent to form an organometallic solution, comprising adding and reacting a partly fluorinated co-solubilizer, an organometallic compound, and a fluorinated solvent, wherein the partly fluorinated co-solubilizer has the ability to cause the organometallic compound to become miscible in the fluorinated solvent, and wherein the partly fluorinated co-solubilizer does not act as a catalyst and is present in the organometallic solution, and further wherein the partly fluorinated co-solubilizer has the following formula III:

$$CF_3(CF_2)_q(CH_2)_r\text{-}COOH$$

wherein q is a number of from about 0 to about 25, and r is a number of from about 1 to about 25.